ROCKY FLATS CITIZENS ADVISORY BOARD
MINUTES OF WORK SESSION
January 6, 2000
6 - 9:30 p.m.
College Hill Library, Front Range Community College
Westminster, Colorado

FACILITATOR: Reed Hodgin

Gerald DePoorter, the Board's chair, called the meeting to order at 6:00 p.m.

BOARD / EX-OFFICIO MEMBERS PRESENT: Ray Betts, Shawn Burke, Eugene DeMayo, Jerry DePoorter, Jeff Eggleston, Mary Harlow, Victor Holm, Jim Kinsinger, Bill Kossack, Tom Marshall, Markuené Sumler / Steve Gunderson, Jeremy Karpatkin, John Rampe, Tim Rehder

BOARD / EX-OFFICIO MEMBERS ABSENT: Joe Downey, Tom Gallegos, Mary Mattson, LeRoy Moore, Bryan Taylor

PUBLIC / OBSERVERS PRESENT: Bruce Dahm (Broomfield); Don Owen (DNFSB); David Grover (DNFSB); Tom Stewart (CDPHE); Louise Janson (citizen); Patrick Etchart (DOE-RFFO); Carl Spreng (CDPHE); Alan Trenary (citizen); Dennis Lopez (City of Thornton); Ken Korkia (CAB staff); Erin Rogers (CAB staff); Deb Thompson (CAB staff); Brady Wilson (CAB staff)

UPDATE FROM DEFENSE NUCLEAR FACILITIES SAFETY BOARD: Dave Grover and Don Owen attended the meeting to give a quarterly update to the Board on DNFSB activities at Rocky Flats. Those are summarized below:

Risk reduction activities as part of DNFSB recommendation #94-1:

- Most of the major milestones committed to during 1999 have been completed, including draining and processing of all Building 371 liquids, draining six actinide migration systems in Building 771, characterizing salt and other residues, plus stabilization of ion exchange resins, high risk salts, and ash residues. Those not completed are running about 1-2 months behind schedule.
- Sand, slag and crucible/plutonium fluorides were scheduled to be shipped to SRS for processing. Rocky Flats is proposing to change the disposition path, in order to ship them to WIPP. The proposed change is due to shipping issues, the characterization required, and a backlog in certification for the shipping container.
- DOE has been working on a revision to the metal and oxide standards. DNFSB accepted that revision. The primary change: in the past, compounds with 50% or more plutonium could be sent through the Plutonium Packaging System — now it is 30% or more. There are alternate methods to measure moisture to verify that there won't be pressurization concerns in the containers.
- The stabilization portion of the Plutonium Packaging System is still under construction. The Packaging System has been installed, procedures have been developed, and operators have been trained. Some problems with building processes occurred. Modifications were done to meet QA requirements on the outer can welds.

Packaging of metal and oxides will be delayed about two months — and is expected to begin around mid-February.

Glovebox Size Reduction in Buildings Undergoing D&D:

- In Building 779, size reduction was done with workers in bubble suits, with no real engineered controls to reduce the airborne environment around the workers. DNFSB encouraged DOE to bring the workers into a lower airborne level environment. The new approach, beginning with D&D activities in Building 771, is an "Inner Tent Chamber." The chamber is a ventilated enclosure in which the glovebox is placed, and workers access the glovebox through sliding doors. The airborne level environment around the workers has been reduced, but supplied air to the workers is still required.
- In the inner tent chamber, five gloveboxes in Building 771 were size-reduced by the end of 1999, between July and December. Improvements are planned for the next generation of the chamber's design, which should hopefully enable workers to do their jobs without wearing bubble suits.
- The current chamber only does mechanical cutting, and they are reviewing the possibility of doing thermal cutting. DNFSB will review any plans for using plasma arc cutting.
- Robotics is another planned activity, to be used in Building 776. This would involve fully enclosed areas where a glovebox is placed, and have it cut by robotic arms, with no worker interaction.

Other Issues:

- Work planning and control — ensuring that all the controls identified by various disciplines are considered as an integrated whole during work planning.
- Adherence to safety controls and conduct of operations — both DOE and Kaiser-Hill recognized a trend with problems in this area and are working hard on improvements.
- Building 707 ventilation alarms — the operators were seeing huge numbers of alarms in any given time frame. Software was changed to eliminate nuisance alarms. They are setting up a new configuration so alarms important to safety are easily recognizable.
- Fire Department outsourcing — a lot of people have been lost, and more are projected. One avenue to address this is to outsource it to the local municipalities. That would give the Fire Department personnel more job security. DNFSB will follow this issue to make sure that safety-basis controls are maintained.
- Control of personnel in airborne areas — in May there was a drill where there was demonstrated poor response to potential airborne contamination in an area. DNFSB will continue to follow improvements planned by Kaiser-Hill.

UPDATE BY EPA: Tim Rehder gave a brief presentation on a proposed power line. Public Service Company approached DOE requesting a utility easement in the Rocky Flats buffer zone in order to construct a new transmission line. There is an existing 230kV overhead transmission line running north-south through the Rocky Flats site. There are also existing lines that bring power to the Rocky Flats main site area. Public Service would like to tap another line from the 230kV line. The new line would run eastward across the Buffer Zone, connecting to a new substation to be located near Jefferson County Airport. DOE representatives told Public Service they wanted to ensure the corridor where the line ran would go through is sufficiently clean and no further action was needed. EPA would need to

agree that the area was cleaned up sufficiently, and either remove Superfund Site designation from the proposed utility easement, or issue a Record of Decision stating that no further cleanup is necessary within the easement. Two potential corridors were identified — a northern or a southern corridor. Public Service will need to conduct additional sampling along both proposed corridors to confirm they are not contaminated to a degree that would make it difficult to either delist the area or issue a no action ROD. Public Service will also need to talk to local governments to determine the best alignment for the new line, and discuss with the U.S. Fish and Wildlife Service any issues about disturbing the habitat of the Preble's mouse. The company will probably return in the next month or so with a preferred corridor, and DOE and EPA will discuss the number and location of additional soil samples at that time.

RFCA PRINCIPALS UPDATE: DOE has received via email a document showing the proposed milestones for FY00. They include: demolition of Building 779 to its slab by September 30; shipping 6,000 cubic meters of LL/LLMW; completing 86 shipments to WIPP (assuming it remains open during the fiscal year with a RCRA disposal permit and can accept Rocky Flats TRU and TRM); storing TRU waste in Building 906 by September 1; and completion of 18 D&D worksets by September 30. DOE agrees with the milestones, with the exception of the completion of 18 D&D worksets — they would like to have that number changed to 14. The draft baseline submitted in May has scheduled 24 worksets to be completed in two buildings by the end of the year — only 14 are funded at this time. The site raised concerns about the fact that they need to develop new technology. CDPHE felt 18 would be a reasonable compromise. A milestone for FY01 was also set, which calls for completion of 30 D&D additional worksets in an attempt to get DOE back on schedule by the end of 2001. Contract negotiations are still ongoing; they were scheduled to be completed at the end of November but may not be completed for another month. Once the contract is finalized, they can move forward on other parts of the RFCA principals agreement, such as what role the regulators will play in determining when the contractor gets a fee. Timing of the 903 Pad remediation was also a concern of RFCAB in the past. The path forward calls for that to be done by either commencing work in 2002 or in 2003. It has been proposed to have EPA perform the remediation work on the 903 Pad. How that will be accomplished will have to be worked out in greater detail. However, DOE would still provide funds for the remediation project.

EDUCATIONAL PRESENTATION ON RISK ASSESSMENT: Bonnie LaVelle, Remedial Project Manager with Region VIII EPA, attended the Board meeting to help educate Board members and others on the risk assessment process used at Superfund sites like Rocky Flats.

Risk is the probability of an adverse health effect occurring as a result of exposure to a hazardous constituent. Risk is expressed in mathematical terms. For instance, if the probability of an adverse health effect is one in 10, the exponent 10^{-1} is used. As the chances decrease (e.g. one in 100, 1,000, 10,000, etc.), the exponent changes. In order to be protective of human health, for regulatory decision-making EPA considers factors between 10^{-4} and 10^{-6} acceptable. Within that range, a cleanup action generally will not be taken. The definition of risk assessment by the National Academy of Sciences states that it is "The scientific activity of evaluating the toxic properties of a substance and the conditions of human exposure in order to ascertain the likelihood that exposed humans will be adversely affected, and to characterize the nature of the effects they may experience." Risk assessment is a combination of science and judgment. Judgments must be made about such issues as

how the land will be used, how contact might be made with water, air or soil, and what hazards may be in them. The exposure factor is important — there may be a toxic substance that no one comes into contact with, so there is no risk involved. Likewise, there can be a substance that is not so toxic, but massive exposure to it may produce a risk.

EPA is strict about separating the assessment of risk from the management of risk. Risk management is making decisions about whether an assessed risk is sufficiently high enough to present a public health concern and about the appropriate way to respond to that concern. Risk assessors are independent and perform their assessments without the influence of project/risk managers. Factors that the risk manager considers include the economic costs and benefits; ethical, social and political factors; legal and regulatory constraints; business interests; and public interests. The risk assessment process is an attempt to indicate which substances are the most hazardous and predict how people may be exposed. It doesn't necessarily mean that people will be exposed. It will determine the probability of a health effect given that exposure, and identify problems that should be addressed and certain populations to be concerned about. What risk assessment doesn't do is identify whether health effects have occurred in the past, identify individuals who are likely to have health problems, or identify technologies to address contamination problems.

The steps involved in risk assessment are data collection and evaluation, performing both an exposure (dose) assessment and a toxicity assessment, and finally characterizing the risk. Given the dose that is predicted, based on the data collected at the site, and comparing that to a safe dose, a prediction is made about the risk of having an adverse health effect. To ensure data quality, they use standardized procedures, EPA approved laboratories, and an independent validation process.

Exposure assessment is about understanding pathways to exposure, and this step must involve the community where exposure may have occurred. An exposure pathway must have the following components: a contaminant source, a release mechanism, a transport medium, an exposure point, an exposure route, and finally a receptor (an individual). By analyzing an exposure pathway, you can determine what to do about a defined risk — to review where in the pathway it makes sense to break the exposure. Sometimes all you can do is remove the people from the area of concern. However, it is preferred to break the pathway prior to the "exposure point."

The next step is to calculate dose, or intake (the amount of chemical taken into the body). The equation uses the following factors: the chemical concentration (average concentration contacted over the exposure period), the contact rate (amount of contaminated medium contacted per unit of time), exposure frequency and exposure duration. A calculated dose rate also factors in the individual's body weight, and then is averaged over a time period of 70 years for carcinogens. Because a great deal of judgment is involved, EPA has established what is called a Reasonable Maximum Exposure (RME) — the highest exposure that is reasonably expected to occur at a site, considering land use, intake rates, and pathway combinations. The intent is to estimate an exposure case that is within the upper range of possible exposures. A useful comparison is then to also calculate a dose for a more average exposure scenario — a "central tendency" calculation.

Once you have established the dose rates, then you have to assess what is a "safe" dose by assessing the toxicity of both carcinogens and non-carcinogens. In calculating doses for carcinogens, sometimes there is data available from epidemiological studies on humans, but often you must rely on clinical studies of laboratory animals. Generally, in order to get a

cancer effect, animals are given high doses. Then EPA extrapolates that data down to zero, under the premise that they predict a certain risk even at low doses. EPA uses models like the Linearized Multistage Model, which transform the high-dose data into low-dose estimates, and then use the "slope factor" of the line to predict a dose. For non-carcinogens, there tends to be lower doses, and there is evidence that at a certain threshold you will start to see effects. EPA first looks at the threshold level, then backs off to a safe level by dividing the dose by some safety factors.

EPA publishes all of its toxicity information on the Integrated Risk Information System, or IRIS, which is available on the web (www.epa.gov/iris). However, this database will not include information on radionuclide carcinogenicity (slope factors). That information is published in a "Health Effects Assessment Summary Table," which is updated annually. This table shows the risks associated with each picocurie of dose by ingestion, inhalation or external exposure.

In summary, the national goal of the remedy selection process is to select remedies that are protective of human health and the environment, maintain that protection over time, and minimize untreated waste. The regulations for Superfund state that for known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper bound lifetime cancer risk to an individual of between 10^{-4} and 10^{-6} — or one in 10,000 to one in a million. When the likelihood is less than one in 10,000 that an individual will get cancer, EPA generally does not undertake a cleanup. However, other environmental standards may be used to determine whether cleanup is necessary, such as ecological risks.

Comment: Alan Trenary: Regarding the 903 Pad, I would like to see Kaiser-Hill and DOE have to take responsibility for cleaning up the mess, but I feel comfortable with EPA taking it over, because I know EPA won't pack up and leave before the project is completed. I don't feel comfortable with Kaiser-Hill/DOE waiting until the end of the closure project to work on this, because it won't get done properly. I feel the 903 Pad is the worst problem we have out there as far as what it will cost to adequately take care of the problem.

Comment: Anna Martinez: About the 903 Pad and the possibility that EPA would do the remediation, is it too early to know where the funding would come from? Would both agencies contribute to this effort?

Response: Tim Rehder: No, DOE will fund it.

ACTINIDE MIGRATION EVALUATION TECHNICAL REVIEW GROUP (AME TRG) RECOMMENDATION: The AME TRG, formed in 1998 by RFCAB as a semi-autonomous working group, provides independent public oversight to the Rocky Flats Actinide Migration Evaluation. The group's technical contractor, ATL International, reviewed the Conceptual Model for Actinide Migration Studies at RFETS, and provided substantial comment. Highlights include:

Justification/Reference Needed:

- The document classifies pathways as "not viable" and "dominant" without providing justification for the classification.
- The document does not clearly indicate the purpose of the model.

- More data is available regarding this work than has been reviewed and/or referenced.
- A great deal of AME work has been performed elsewhere; the document should explain the benefits of gaining site-specific understanding.

Clarification Needed:

- The document does not clearly state what drives the need to understand actinide migration at the site.
- Dissolved species of contaminants may not move more readily than colloidal species.

Further Model Coverage Needed:

- The model does not take into account extreme episodic events such as fires, floods, and human disturbance.
- Not enough attention is given to biologically mediated mobility such as the effects of ecological health and biologically created preferential flow pathways.

In addition, TRG members provided the following summarized comments:

- The AME goal of meeting long-term water quality standards should be clearly stated in the document.
- Diffuse low-level legacy contamination has been reported as the source of recent exceedences. This is not listed as a source in the model.
- The model should be more specific where pathways are concerned.
- Air transport is considered a minor pathway in the model; the document should reference supporting documentation to verify this designation.

The AME TRG forwarded this recommendation to the Board for its review and further action. The Board chose to forward the TRG's recommendation to DOE and Kaiser-Hill, without changes or comment.

EXECUTIVE SESSION:

- Membership Committee. The Membership Committee recommended, and the Board approved, the addition of a new member, Bruce Dahm. A resident of Thornton, Bruce works for the City of Broomfield as an Environmental Technician. In this position, he is responsible for researching and reporting on Rocky Flats issues, presenting his findings, and making recommendations to city representatives. He is actively involved with several Rocky Flats groups including the Actinide Migration Evaluation Technical Review Group and the ComRad Oversight Panel. Bruce also attends the Radionuclide Soil Action Levels Oversight Panel and Water Working Group meetings. Bruce will represent the City of Broomfield.
- Personnel Committee. Based on evaluations of the performance of three staff members (Erin, Deb and Brady), the Personnel Committee recommended, and the Board approved, annual salary increases for Erin Rogers, Deb Thompson and Brady Wilson .

NEXT MEETING:

Date: February 3, 6 - 9:30 p.m.

Location: Westminster City Hall, lower-level Multi-Purpose Room, 4800 West 92nd Avenue, Westminster

Agenda: Presentation on budget/planning for the site; update from Stewardship Committee

ACTION ITEM SUMMARY: ASSIGNED TO:

1) Prepare AME TRG recommendation; forward to DOE and Kaiser-Hill - Brady Wilson

MEETING ADJOURNED AT 10:15 P.M. *

(* Taped transcript of full meeting is available in CAB office.)

RESPECTFULLY SUBMITTED:

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Mary Harlow, Secretary
Rocky Flats Citizens Advisory Board

The Rocky Flats Citizens Advisory Board is a community advisory group that reviews and provides recommendations on cleanup plans for Rocky Flats, a former nuclear weapons plant outside of Denver, Colorado.

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